

SEQUENCE LISTING

<110> Frank B. Gertler  
James E. Bear  
Jurgen Wehland  
Joseph Loureiro

<120> Methods and Products for Regulating Cell  
Motility

<130> M0656/7064 (HCL)

<140> unassigned

<141> 2001-04-03

<150> 60/194,564

<151> 2000-04-03

<160> 11

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 10

<212> PRT

<213> Listeria monocytogenes

<220>

<221> UNSURE

<222> (1)...(1)

<223> Xaa is Asp or Glu

<221> UNSURE

<222> (7)...(7)

<223> Xaa is any amino acid

<400> 1

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Phe | Pro | Pro | Pro | Pro | Xaa | Asp | Asp | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

<210> 2

<211> 802

<212> PRT

<213> Mus musculus

<400> 2

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Glu | Gln | Ser | Ile | Cys | Gln | Ala | Arg | Ala | Ala | Val | Met | Val | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Asp | Asp | Ala | Asn | Lys | Lys | Trp | Val | Pro | Ala | Gly | Gly | Ser | Thr | Gly | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Ser | Arg | Val | His | Ile | Tyr | His | His | Thr | Gly | Asn | Asn | Thr | Phe | Arg | Val |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Gly | Arg | Lys | Ile | Gln | Asp | His | Gln | Val | Val | Ile | Asn | Cys | Ala | Ile |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Pro | Lys | Gly | Leu | Lys | Tyr | Asn | Gln | Ala | Thr | Gln | Thr | Phe | His | Gln | Trp |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Asp | Ala | Arg | Gln | Val | Tyr | Gly | Leu | Asn | Phe | Gly | Ser | Lys | Glu | Asp |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Ala | Asn | Val | Phe | Ala | Ser | Ala | Met | Met | His | Ala | Leu | Glu | Val | Leu | Asn |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Ser | Gln | Glu | Ala | Ala | Gln | Ser | Lys | Val | Thr | Ala | Thr | Gln | Asp | Ser | Thr |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Asn | Leu | Arg | Cys | Ile | Phe | Cys | Gly | Pro | Thr | Leu | Pro | Arg | Gln | Asn | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Leu | Pro | Ala | Gln | Val | Gln | Asn | Gly | Pro | Ser | Gln | Glu | Glu | Leu | Glu |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Ile | Gln | Arg | Arg | Gln | Leu | Gln | Glu | Gln | Gln | Arg | Gln | Lys | Glu | Leu | Glu |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Glu | Arg | Met | Glu | Arg | Glu | Arg | Leu | Glu | Arg | Glu | Arg | Leu | Glu | Arg |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Arg | Leu | Glu | Arg | Glu | Arg | Leu | Glu | Gln | Glu | Gln | Leu | Glu | Arg | Gln |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Arg | Gln | Glu | Arg | Glu | His | Val | Glu | Arg | Leu | Glu | Arg | Glu | Arg | Leu | Glu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Arg | Leu | Glu | Arg | Glu | Arg | Gln | Glu | Arg | Glu | Arg | Glu | Arg | Leu | Glu | Gln |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Glu | Arg | Glu | Gln | Val | Glu | Trp | Glu | Arg | Glu | Arg | Arg | Met | Ser | Asn |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ala | Ala | Pro | Ser | Ser | Asp | Ser | Ser | Leu | Ser | Ser | Ala | Pro | Leu | Pro | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Tyr | Ser | Ser | Cys | Gln | Pro | Pro | Ser | Ala | Pro | Pro | Pro | Ser | Tyr | Ala | Lys |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Val | Ile | Ser | Ala | Pro | Val | Ser | Asp | Ala | Thr | Pro | Asp | Tyr | Ala | Val | Val |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Thr | Ala | Leu | Pro | Pro | Thr | Ser | Thr | Pro | Pro | Thr | Pro | Pro | Leu | Arg | His |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ala | Ala | Thr | Arg | Phe | Ala | Thr | Ser | Leu | Gly | Ser | Ala | Phe | His | Pro | Val |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Pro | His | Tyr | Ala | Thr | Val | Pro | Arg | Pro | Leu | Asn | Lys | Asn | Ser | Arg |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Pro | Ser | Ser | Pro | Val | Asn | Thr | Pro | Ser | Ser | Gln | Pro | Pro | Ala | Ala | Lys |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ser | Cys | Ala | Trp | Pro | Thr | Ser | Asn | Phe | Ser | Pro | Leu | Pro | Pro | Ser | Pro |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Pro | Ile | Met | Ile | Ser | Ser | Pro | Pro | Gly | Lys | Ala | Thr | Gly | Pro | Arg | Pro |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Val | Leu | Pro | Val | Cys | Val | Ser | Ser | Pro | Val | Pro | Gln | Met | Pro | Pro | Ser |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Pro | Thr | Ala | Pro | Asn | Gly | Ser | Leu | Asp | Ser | Val | Thr | Tyr | Pro | Val | Ser |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Pro | Pro | Pro | Thr | Ser | Gly | Pro | Ala | Ala | Pro | Pro | Pro | Pro | Pro | Pro | Pro |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Leu | Pro | Pro | Pro | Pro | Leu | Pro | Pro |
|     |     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu | Ala | Ser | Leu | Ser | His | Cys | Gly | Ser | Gln | Ala | Ser | Pro | Pro | Pro | Gly |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Thr | Pro | Leu | Ala | Ser | Thr | Pro | Ser | Ser | Lys | Pro | Ser | Val | Leu | Pro | Ser |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Pro | Ser | Ala | Gly | Ala | Pro | Ala | Ser | Ala | Glu | Thr | Pro | Leu | Asn | Pro | Glu |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Leu | Gly | Asp | Ser | Ser | Ala | Ser | Glu | Pro | Gly | Leu | Gln | Ala | Ala | Ser | Gln |
|     |     | 515 |     |     |     |     | 520 | </  |     |     |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 705 | Thr | Pro | Glu | Pro | Thr | Arg | Lys | Pro | Trp | Glu | Arg | Thr | Asn | Thr | Met | Asn | 720 |
|     |     |     |     |     | 725 | Val | Ile | Ser | Arg | 730 | Lys | Ser | Thr | Pro | Ser | Ser |     |
| Gly | Ser | Lys | Ser | Pro | 740 |     |     |     | 745 |     |     |     |     |     |     |     |     |
| Gln | Pro | Ser | Ala | Asn | Gly | Val | Gln | Thr | Glu | Gly | Leu | Asp | Tyr | Asp | Arg |     |     |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |     |     |
| Leu | Lys | Gln | Asp | Ile | Leu | Asp | Glu | Met | Arg | Lys | Glu | Leu | Ala | Lys | Leu |     |     |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |     |     |
| Lys | Glu | Glu | Leu | Ile | Asp | Ala | Ile | Arg | Gln | Glu | Leu | Ser | Lys | Ser | Asn |     |     |
|     | 785 |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |     |     |
| Thr | Ala |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 3  
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 <212> PRT  
 <213> Listeria monocytogenes

<400> 3  
 Phe Pro Pro Pro Pro  
 1 5

<210> 4  
 <211> 5  
 <212> PRT  
 <213> Listeria monocytogenes

<400> 4  
 Ala Pro Pro Pro Pro  
 1 5

<210> 5  
 <211> 639  
 <212> PRT  
 <213> Listeria monocytogenes

<400> 5

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Gly | Leu | Asn | Arg | Phe | Met | Arg | Ala | Met | Met | Val | Val | Phe | Ile | Thr |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Ala | Asn | Cys | Ile | Thr | Ile | Asn | Pro | Asp | Ile | Ile | Phe | Ala | Ala | Thr | Asp |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Ser | Glu | Asp | Ser | Ser | Leu | Asn | Thr | Asp | Glu | Trp | Glu | Glu | Glu | Lys | Thr |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Glu | Glu | Gln | Pro | Ser | Glu | Val | Asn | Thr | Gly | Pro | Arg | Tyr | Glu | Thr | Ala |  |  |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Arg | Glu | Val | Ser | Ser | Arg | Asp | Ile | Lys | Glu | Leu | Glu | Lys | Ser | Asn | Lys |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |  |  |
| Val | Arg | Asn | Thr | Asn | Lys | Ala | Asp | Leu | Ile | Ala | Met | Leu | Lys | Glu | Lys |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |
| Ala | Glu | Lys | Gly | Pro | Asn | Ile | Asn | Asn | Asn | Asn | Ser | Glu | Gln | Thr | Glu |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Asn | Ala | Ala | Ile | Asn | Glu | Glu | Ala | Ser | Gly | Ala | Asp | Arg | Pro | Ala | Ile |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Gln | Val | Glu | Arg | Arg | His | Pro | Gly | Leu | Pro | Ser | Asp | Ser | Ala | Ala | Glu |  |  |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| Ile | Lys | Lys | Arg | Arg | Lys | Ala | Ile | Ala | Ser | Ser | Asp | Ser | Glu | Leu | Glu |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |  |  |
| Ser | Leu | Thr | Tyr | Pro | Asp | Lys | Pro | Thr | Lys | Val | Asn | Lys | Lys | Lys | Val |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |  |
| Ala | Lys | Glu | Ser | Val | Ala | Asp | Ala | Ser | Glu | Ser | Asp | Leu | Asp | Ser | Ser |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |
| Met | Gln | Ser | Ala | Asp | Glu | Ser | Ser | Pro | Gln | Pro | Leu | Lys | Ala | Asn | Gln |  |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
| Gln | Pro | Phe | Phe | Pro | Lys | Val | Phe | Lys | Lys | Ile | Lys | Asp | Ala | Gly | Lys |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |
| Trp | Val | Arg | Asp | Lys | Ile | Asp | Glu | Asn | Pro | Glu | Val | Lys | Lys | Ala | Ile |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |

Val Asp Lys Ser Ala Gly Leu Ile Asp Gln Leu Leu Thr Lys Lys Lys  
 245 250 255  
 Ser Glu Glu Val Asn Ala Ser Asp Phe Pro Pro Pro Thr Asp Glu  
 260 265 270  
 Glu Leu Arg Leu Ala Leu Pro Glu Thr Pro Met Leu Leu Gly Phe Asn  
 275 280 285  
 Ala Pro Ala Thr Ser Glu Pro Ser Ser Phe Glu Phe Pro Pro Pro  
 290 295 300  
 Thr Asp Glu Glu Leu Arg Leu Ala Leu Pro Glu Thr Pro Met Leu Leu  
 305 310 315 320  
 Gly Phe Asn Ala Pro Ala Thr Ser Glu Pro Ser Ser Phe Glu Phe Pro  
 325 330 335  
 Pro Pro Pro Thr Glu Asp Glu Leu Glu Ile Ile Arg Glu Thr Ala Ser  
 340 345 350  
 Ser Leu Asp Ser Ser Phe Thr Arg Gly Asp Leu Ala Ser Leu Arg Asn  
 355 360 365  
 Ala Ile Asn Arg His Ser Gln Asn Phe Ser Asp Phe Pro Pro Ile Pro  
 370 375 380  
 Thr Glu Glu Glu Leu Asn Gly Arg Gly Gly Arg Pro Thr Ser Glu Glu  
 385 390 395 400  
 Phe Ser Ser Leu Asn Ser Gly Asp Phe Thr Asp Asp Glu Asn Ser Glu  
 405 410 415  
 Thr Thr Glu Glu Glu Ile Asp Arg Leu Ala Asp Leu Arg Asp Arg Gly  
 420 425 430  
 Thr Gly Lys His Ser Arg Asn Ala Gly Phe Leu Pro Leu Asn Pro Phe  
 435 440 445  
 Ala Ser Ser Pro Val Pro Ser Leu Ser Pro Lys Val Ser Lys Ile Ser  
 450 455 460  
 Ala Pro Ala Leu Ile Ser Asp Ile Thr Lys Lys Thr Pro Phe Lys Asn  
 465 470 475 480  
 Pro Ser Gln Pro Leu Asn Val Phe Asn Lys Lys Thr Thr Thr Lys Thr  
 485 490 495  
 Val Thr Lys Lys Pro Thr Pro Val Lys Thr Ala Pro Lys Leu Ala Glu  
 500 505 510  
 Leu Pro Ala Thr Lys Pro Gln Glu Thr Val Leu Arg Glu Asn Lys Thr  
 515 520 525  
 Pro Phe Ile Glu Lys Gln Ala Glu Thr Asn Lys Gln Ser Ile Asn Met  
 530 535 540  
 Pro Ser Leu Pro Val Ile Gln Lys Glu Ala Thr Glu Ser Asp Lys Glu  
 545 550 555 560  
 Glu Met Lys Pro Gln Thr Glu Glu Lys Met Val Glu Glu Ser Glu Ser  
 565 570 575  
 Ala Asn Asn Ala Asn Gly Lys Asn Arg Ser Ala Gly Ile Glu Glu Gly  
 580 585 590  
 Lys Leu Ile Ala Lys Ser Ala Glu Asp Glu Lys Ala Lys Glu Glu Pro  
 595 600 605  
 Gly Asn His Thr Thr Leu Ile Leu Ala Met Leu Ala Ile Gly Val Phe  
 610 615 620  
 Ser Leu Gly Ala Phe Ile Lys Ile Ile Gln Leu Arg Lys Asn Asn  
 625 630 635

<210> 6  
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 <212> PRT  
 <213> Homo sapien  
  
 <220>  
 <221> UNSURE  
 <222> (4)...(4)  
 <223> Xaa is any amino acid

<400> 6  
 Cys Ala Ala Xaa  
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<210> 7  
 <211> 9  
 <212> PRT

<213> Homo sapien

<220>

<221> UNSURE

<222> (9)...(9)

<223> Xaa is any amino acid

<400> 7

Phe Pro Pro Pro Pro Cys Ala Ala Xaa  
1 5

<210> 8

<211> 9

<212> PRT

<213> Homo sapien

<220>

<221> UNSURE

<222> (9)...(9)

<223> Xaa is any amino acid

<400> 8

Ala Pro Pro Pro Pro Cys Ala Ala Xaa  
1 5

<210> 9

<211> 684

<212> PRT

<213> Drosophila melanogaster

<400> 9

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Glu | Gln | Ser | Ile | Ile | Gly | Ala | Arg | Ala | Ser | Val | Met | Val | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Asp | Asp | Asn | Gln | Lys | Lys | Trp | Val | Pro | Ser | Gly | Ser | Ser | Ser | Gly | Leu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Lys | Val | Gln | Ile | Tyr | His | His | Gln | Gln | Asn | Asn | Thr | Phe | Arg | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Gly | Arg | Lys | Leu | Gln | Asp | His | Glu | Val | Val | Ile | Asn | Cys | Ser | Ile |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Lys | Gly | Leu | Lys | Tyr | Asn | Gln | Ala | Thr | Ala | Thr | Phe | His | Gln | Trp |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Arg | Asp | Ser | Lys | Phe | Val | Tyr | Gly | Leu | Asn | Phe | Ser | Ser | Gln | Asn | Asp |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ala | Glu | Asn | Phe | Ala | Arg | Ala | Met | Met | His | Ala | Leu | Glu | Val | Leu | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly | Arg | Val | Ala | Asn | Asn | Pro | Gly | Gly | Pro | Pro | Thr | Asn | Gly | Asn | Gly |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Glu | Asp | Met | Gly | Tyr | Arg | Thr | Met | Thr | Ser | Glu | Asp | Ala | Ala |     |
|     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Ile | Leu | Arg | Gln | Asn | Asn | Ser | Ile | Gly | Gly | His | Val | Thr | Pro | Ser | Ala |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Gln | Thr | Pro | Thr | Ser | Gln | Thr | Asn | Gln | Asn | Asn | Ile | Pro | Gln | Ser | Pro |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Thr | Pro | Gln | Gly | His | His | Arg | Thr | Ser | Ser | Ala | Pro | Pro | Ala | Pro |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gln | Pro | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Ala | Gln | Gln | Met | Gly | Gln |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Pro | Gly | Ser | His | Tyr | Gly | Pro | Thr | Gly | Asn | Gly | Pro | Thr | Ser | Asn | Gly |
|     |     |     | 210 |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Pro | Gln | Gln | Val | Asn | Ser | Gln | Ile | Pro | Pro | Ala | Pro | Gln | Gln | Gln |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Pro | Gln | Gln | Gln | Gln | Phe | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Gln | Tyr | Gln |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Gln | Met | Val | Gln | Ala | Gly | Tyr | Ala | Pro | Ser | Gln | Gln | Tyr | Gln | Gln | Pro |
|     |     |     | 260 |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| His | Tyr | Val | Leu | Ser | Asn | Ser | Asn | Pro | Asn | Leu | Thr | Val | His | Gln | Tyr |
|     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Pro | Thr | Gln | Gln | Ala | Gln | Gln | Gln | Pro | Pro | Gln | Ala | Pro | Gln | Pro | Pro |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 290 |     | 295 |     | 300 |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Gln | Asn | Gly | Gly | Met | Tyr | Met | Val | Gly | His | Ser | His | Leu | Pro | Ser |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ser | Ala | Ser | Ala | Asn | Ser | Val | Val | Tyr | Ala | Ser | Gln | Gln | Gln | Met | Leu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Pro | Gln | Ala | His | Pro | Gln | Ala | Pro | Gln | Ala | Pro | Thr | Met | Pro | Gly | Pro |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gly | Tyr | Gly | Gly | Pro | Pro | Val | Pro | Pro | Pro | Gln | Gln | Gln | Ala | Glu | Asn |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Pro | Tyr | Gly | Gln | Val | Pro | Met | Pro | Pro | Pro | Met | Asn | Pro | Ser | Gln | Gln |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Gln | Gln | Pro | Gly | Gln | Val | Pro | Leu | Asn | Arg | Met | Ser | Ser | Gln | Gly | Gly |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Pro | Gly | Gly | Pro | Pro | Ala | Pro | Ala | Pro | Pro | Pro | Pro | Pro | Pro | Ser | Phe |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Gly | Gly | Ala | Ala | Gly | Gly | Gly | Pro | Pro | Pro | Pro | Ala | Pro | Pro | Gln | Met |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Phe | Asn | Gly | Ala | Pro | Pro | Pro | Pro | Ala | Met | Gly | Gly | Gly | Gly | Pro | Pro |
|     | 435 |     |     |     |     |     | 440 |     |     |     | 445 |     |     |     |     |
| Ala | Pro | Pro | Ala | Pro | Pro | Ala | Met | Gly | Gly | Gly | Pro | Pro | Pro | Ala | Pro |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gly | Gly | Pro | Gly | Ala | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Gly | Leu | Gly |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Gly | Ala | Pro | Lys | Lys | Glu | Asp | Pro | Gln | Ala | Asp | Leu | Met | Gly | Ser | Leu |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |
| Ala | Ser | Gln | Leu | Gln | Gln | Phe | Lys | Leu | Lys | Lys | Asn | Lys | Val | Thr | Thr |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Ser | Ala | Pro | Glu | Asn | Ser | Gly | Ser | Ser | Thr | Ser | Ser | Gly | Gly | Ser | Gly |
|     | 515 |     |     |     |     | 520 |     |     |     |     |     | 525 |     |     |     |
| Asn | Tyr | Gly | Thr | Ile | Gly | Arg | Ser | Ser | Asn | Gly | Met | Ala | Ser | Met | Met |
|     | 530 |     |     |     | 535 |     |     |     |     |     | 540 |     |     |     |     |
| Asp | Glu | Met | Ala | Lys | Thr | Leu | Ala | Arg | Arg | Arg | Ala | Gln | Ala | Glu | Lys |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Lys | Asp | Pro | Asp | Pro | Glu | Ala | Glu | Val | Lys | Lys | Arg | Pro | Trp | Glu | Lys |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Ser | Asn | Thr | Leu | Pro | His | Lys | Leu | Ser | Gly | Gly | Ala | Gly | Ser | Gly | Ser |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Ala | Gly | Ser | Gly | His | Glu | Gly | Ala | Asn | Gly | Asn | Ser | Gly | Gly | Ala | Gly |
|     | 595 |     |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Ser | Asn | Thr | Thr | Asn | Ser | Gly | Gly | Glu | Ser | Pro | Arg | Pro | Met | Arg | Lys |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Arg | Phe | Gly | Ser | Ala | Ser | Glu | Glu | Thr | Ile | Leu | Lys | Val | Asn | Gly | Asp |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Gly | Leu | Ser | Leu | Ala | Leu | Ser | Asn | Gly | Asp | Leu | Asp | Thr | Leu | Lys | Ala |
|     |     |     | 645 |     |     |     |     |     | 650 |     |     |     |     | 655 |     |
| Glu | Ile | Val | Arg | Glu | Met | Arg | Leu | Glu | Ile | Gln | Lys | Val | Lys | Asn | Glu |
|     |     | 660 |     |     |     |     |     | 665 |     |     |     |     | 670 |     |     |
| Ile | Ile | Asp | Ala | Ile | Lys | Ser | Glu | Phe | Asn | Arg | Arg |     |     |     |     |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     |     |     |     |     |

<210> 10  
 <211> 380  
 <212> PRT  
 <213> Homo sapien

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 10 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Ser | Glu | Thr | Val | Ile | Cys | Ser | Ser | Arg | Ala | Thr | Val | Met | Leu | Tyr |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asp      | Asp | Gly | Asn | Lys | Arg | Trp | Leu | Pro | Ala | Gly | Thr | Gly | Pro | Gln | Ala |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe      | Ser | Arg | Val | Gln | Ile | Tyr | His | Asn | Pro | Thr | Ala | Asn | Ser | Phe | Arg |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val      | Val | Gly | Arg | Lys | Met | Gln | Pro | Asp | Gln | Gln | Val | Val | Ile | Asn | Cys |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala      | Ile | Val | Arg | Gly | Val | Lys | Tyr | Asn | Gln | Ala | Thr | Pro | Asn | Phe | His |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gln      | Trp | Arg | Asp | Ala | Arg | Gln | Val | Trp | Gly | Leu | Asn | Phe | Gly | Ser | Lys |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Asp | Ala | Ala | Gln | Phe | Ala | Ala | Gly | Met | Ala | Ser | Ala | Leu | Glu | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Glu | Gly | Gly | Gly | Pro | Pro | Pro | Pro | Pro | Ala | Leu | Pro | Thr | Trp | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Pro | Asn | Gly | Pro | Ser | Pro | Glu | Glu | Val | Glu | Gln | Gln | Lys | Arg | Gln |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gln | Pro | Gly | Pro | Ser | Glu | His | Ile | Glu | Arg | Arg | Val | Ser | Asn | Ala | Gly |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Pro | Pro | Ala | Pro | Pro | Ala | Gly | Gly | Pro | Pro | Pro | Pro | Pro | Gly | Pro |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Pro | Pro | Pro | Gly | Pro | Pro | Pro | Pro | Pro | Gly | Leu | Pro | Pro | Ser | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     | 190 |     |     |     |
| Val | Pro | Ala | Ala | Ala | His | Gly | Ala | Gly | Gly | Gly | Pro | Pro | Pro | Ala | Pro |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Pro | Leu | Pro | Ala | Ala | Gln | Gly | Pro | Gly | Gly | Gly | Gly | Ala | Gly | Ala | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Leu | Ala | Ala | Ala | Ile | Ala | Gly | Ala | Lys | Leu | Arg | Lys | Val | Ser | Lys |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gln | Glu | Glu | Ala | Ser | Gly | Gly | Pro | Thr | Ala | Pro | Lys | Ala | Glu | Ser | Gly |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg | Ser | Gly | Gly | Gly | Gly | Leu | Met | Glu | Glu | Met | Asn | Ala | Met | Leu | Ala |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Arg | Arg | Arg | Lys | Ala | Thr | Gln | Val | Gly | Glu | Lys | Thr | Pro | Lys | Asp | Glu |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ser | Ala | Asn | Gln | Glu | Glu | Pro | Glu | Ala | Arg | Val | Pro | Ala | Gln | Ser | Glu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Val | Arg | Arg | Pro | Trp | Glu | Lys | Asn | Ser | Thr | Thr | Leu | Pro | Arg | Met |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Lys | Ser | Ser | Ser | Ser | Val | Thr | Thr | Ser | Glu | Thr | Gln | Pro | Cys | Thr | Pro |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ser | Ser | Ser | Asp | Tyr | Ser | Asp | Leu | Gln | Arg | Val | Lys | Gln | Glu | Leu | Leu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Glu | Glu | Val | Lys | Lys | Glu | Leu | Gln | Lys | Val | Lys | Glu | Glu | Ile | Ile | Glu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ala | Phe | Val | Gln | Glu | Leu | Arg | Lys | Arg | Gly | Ser | Pro |     |     |     |     |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |

<210> 11  
 <211> 393  
 <212> PRT  
 <213> Mus musculus

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 11 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Ser | Glu | Gln | Ser | Ile | Cys | Gln | Ala | Arg | Ala | Ser | Val | Met | Val | Tyr |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Asp      | Asp | Thr | Ser | Lys | Lys | Trp | Val | Pro | Ile | Lys | Pro | Gly | Gln | Gln | Gly |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe      | Ser | Arg | Ile | Asn | Ile | Tyr | His | Asn | Thr | Ala | Ser | Ser | Thr | Phe | Arg |
|          |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val      | Val | Gly | Val | Lys | Leu | Gln | Asp | Gln | Gln | Val | Val | Ile | Asn | Tyr | Ser |
|          | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Ile      | Val | Lys | Gly | Leu | Lys | Tyr | Asn | Gln | Ala | Thr | Pro | Thr | Phe | His | Gln |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Trp      | Arg | Asp | Ala | Arg | Gln | Val | Tyr | Gly | Leu | Asn | Phe | Ala | Ser | Lys | Glu |
|          |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Glu      | Ala | Thr | Thr | Phe | Ser | Asn | Ala | Met | Leu | Phe | Ala | Leu | Asn | Ile | Met |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn      | Ser | Gln | Glu | Gly | Gly | Pro | Ser | Thr | Gln | Arg | Gln | Val | Gln | Asn | Gly |
|          |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Pro      | Ser | Pro | Glu | Glu | Met | Asp | Ile | Gln | Arg | Arg | Gln | Val | Met | Glu | Gln |
|          |     | 130 |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Gln      | His | Arg | Gln | Glu | Ser | Leu | Glu | Arg | Arg | Ile | Ser | Ala | Thr | Gly | Pro |
| 145      |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ile      | Leu | Pro | Pro | Gly | His | Pro | Ser | Ser | Ala | Ala | Ser | Thr | Thr | Leu | Ser |
|          |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Cys      | Ser | Gly | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Val | Pro | Pro | Pro | Pro |
|          |     |     | 180 |     |     |     |     | 185 |     |     |     | 190 |     |     |     |
| Thr      | Gly | Ser | Thr | Pro | Pro | Pro | Pro | Pro | Pro | Leu | Pro | Ala | Gly | Gly | Ala |

[illegible]